

VPR-3



AMPEX

The VPR-3... A major revolution in VTR technology.

This is the ultimate in professional VTRs from the name you've come to respect in broadcast video. Ampex introduced the first practical videotape recorder in 1956, and we've been the recognized leader in recording technology ever since. The VPR-3 is the most time efficient, sophisticated and powerful VTR available today for demanding production work. We asked professionals worldwide what they wanted in such a unit. And then we set about to incorporate all those most-asked-for features in the VPR-3.

The VPR-3 has been created for the uncompromising new video production world. It has more instant functions. It is more versatile and flexible. It's more precise and sophisticated. And it's crafted for longer life and simpler maintainability. Day-in, day-out, this machine will give you air-guided tape handling, superior video and audio features, simplified control and easy adjustment accessibility.

VPR-3. It's ideal for teleproduction where time is money. For broadcasters use where versatility is expected. And for satellite or cable distribution organizations where dependability is demanded.

VPR-3. From Ampex.

VPR-3 Exclusive features

- ☐ Pinch-rollerless design. Vacuum capstan with gas film and roller guides provide fast, gentle and precise tape control and handling in all operating modes for smooth, predictable acceleration/deceleration.
- ☐ 500 inches/second² acceleration/deceleration profile allows a 30 second segment to be re-cued and synchronously played in 2.0 seconds using one hour tape reels.
- ☐ Large dot addressable fluorescent display with direct access and six menu-identified "soft keys" can easily organize, display and simplify important operational control and diagnostic functions.
- ☐ Unique SCH phase meter built-in to assure better control for fast edits without picture shift.
- ☐ Master Unity control.

- ☐ Automatic computer optimization of video and audio record parameters, with storage for three tape types.
- ☐ Single field lock-up (20 milliseconds) and synchronous start for full color frame playback in a maximum of four fields in NTSC, and a maximum of eight fields in PAL/SECAM.
- ☐ Audio input and output processing ports for easy interfacing with popular noise reduction and time compression/expansion systems.
- ☐ 3-hour reel capability in either a tabletop or rack-mount configuration.
- ☐ Optional line-by-line auto chroma.
- ☐ Input cable equalizer.

Additional Features

- ☐ AST™ Automatic Scan Tracking permits continuously variable play—from still frame to 3X play speed forward, and zero to 1X in reverse.
- ☐ SMPTE/EBU Type "C", one-inch format.
- ☐ Individually replaceable video and sync head assemblies.
- ☐ Two SMPTE series communications ports (RS-422).

VPR-3 ... the perfect answer for every corner of the demanding video world.

- Networks
- Teleproduction houses
- TV stations
- Cable distribution organizations



VPR-3 . . . the pinnacle of technological superiority

Extra-gentle tape handling

The revolutionary tape handling embodied in the VPR-3 started from the use of highly advanced gas film technology to provide optimum tape guiding with a minimum of friction. The air guides virtually eliminate the friction build up normally found within a "C" format videotape recorder. In locations where air guides are not employed, precision rotary guides are used.

Active guide system

This configuration of guide assemblies reduces the effect of friction changes from forward to reverse or changes due to different tapes, permitting very rapid changes in tape direction regardless of tape type or environmental conditions. This low friction tape guiding system is the most protective of valuable "master" tapes, and makes the proven vacuum capstan concept feasible, thus eliminating the pinch roller while providing gentle precise control of the tape in all operating modes. This also eliminates the mechanical complexity and any flutter contribution of the pinch roller system.

Vacuum capstan

The vacuum capstan is directly coupled to a low inertia high speed DC motor assembly allowing the tape to be controlled from zero to ± 50 times play speed in a single function without transfer of the controlling elements. With the tape pulled against the capstan surface via vacuum, the VPR-3 obtains optimum coupling so that the high resolution capstan tachometer can be used instead of a separate tape timer tach assembly.

High resolution tachometer

The resolution of this tachometer is so high that tape position can be specified in TV lines instead of fields, making parking accuracy superior to all other C-format VTRs. Continuous capstan control of tape motion permits the use of a coupling servo, which monitors both tension arm positions and adjusts capstan acceleration commensurate with the capabilities of the reel servos.

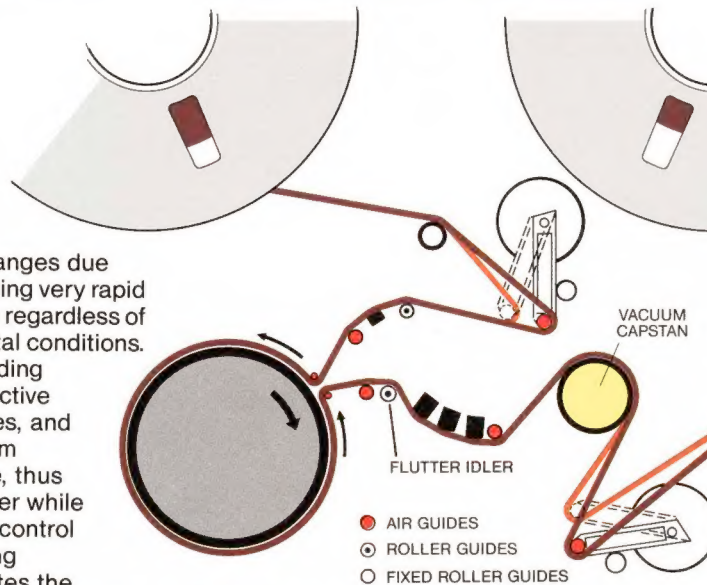
An additional value of this system is that it will handle all sizes of tape reels from the large 3-hour (14") reel to the minimum size spot reel with maximum acceleration and

deceleration, all the while maintaining gentle and precise tape handling.

"Fail-safe" dynamic braking

The servo system is faster than microprocessor based systems and has the added benefit of fail safe power down operation. In the event of an inadvertent power failure even at full shuttle speed the servo system

the "dither" of the AST head is reduced to only 20% of previous values. This results in a "cleaner" video signal in all normal and variable tape speed modes. Another benefit of the combination high resolution capstan tach and the direct coupled AST system is an extremely precise method of controlling the variable speeds in the time-compression/time expansion mode. The system allows speed variations as small as one second per hour up to $\pm 15\%$ to be entered without disturbances, and with complete accuracy. Also variable speed playback as a "programmed mode" has been included, which can learn and memorize a variable play sequence, allowing a complex function to be rehearsed, stored and used at a subsequent time, with field accuracy.

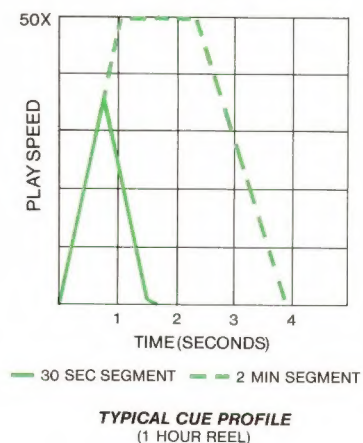
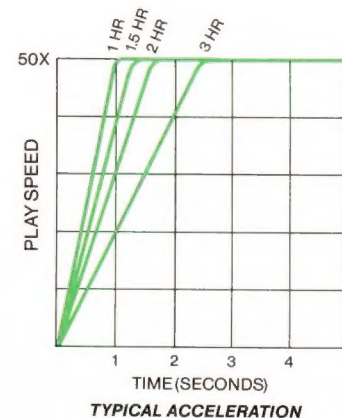


brings the tape to a controlled, fully servoed stop without excessive strain being placed on the delicate tape medium. This fact is accomplished by sensing the lack of power and immediately transferring the kinetic energy stored in the reels to the servo system thereby dynamically braking the reels under servo control to a safe gentle stop. The typical parking brakes normally associated with a tape transport of this type have been completely eliminated to increase reliability and reduce the complexity and to prevent any potential for tape damage.

AST™ Standard

The high frequency tach on the vacuum capstan assembly also provides a precision reference for the AST automatic scan tracking system. The value of this reference is seen in the revolutionary lockup specification of one TV field. With this precise reference the AST system knows precisely the tape position at all times and can predict the correction factors required to produce a stable, disturbance-free picture at all times. This system combined with the extremely fast slew rates of the TBC-3 provides this unequalled performance.

As an additional benefit of this system,



SCH meter: Fast edits, no shifts

VPR-3 features a unique SCH phase meter and control that lets the operator complete faster tape edits without "fear of shifting."

The built-in SCH meter—with green and red zones, (with calibrations for both EBU and EIA specifications) can



give an editor an immediate status reading regarding the SCH phasing status. This is particularly helpful in match frame editing without jumps or shifts. The meter is located such that both the input and the off tape signal can be compared and the result can be instantly predicted. This eliminates the time consuming practice of test edits, adjustments and additional re-edits.

In use, the operator simply compares the meter indication on the off tape signal to the source material. If the meter is in the green area on both signals, the edit will be good. The red zones indicate an area where the results are unpredictable, but the control allows the VPR-3 and the TBC-3 to be offset to match the incoming signal for a good edit.

Illuminated status indicators

Two illuminated indicators above the SCH meter indicating the system is shifted or "uncalibrated", or that a wrong frame comparison is being attempted. These indicators provide the additional information required to make good edit decisions quickly and with ease. The SCH meter and control are superior to all currently used external accessories since they allow both signals to be analyzed and compared. This information when used with the control allows predictable results to be obtained.

The ultimate in audio, too

VPR-3 offers the ultimate technology in audio as well. You get full audio

confidence monitoring on all longitudinal tracks. The system permits dual channel stereo monitoring with individual track selection for extra flexibility.

VPR-3 features automatic computer setup of all audio record parameters (record current, bias current, equalization and pre-distortion). This allows fast and easy optimization for improved audio performance automatically with any audio tape. And these setup parameters are stored for three different tape types for quick access without re-optimization.

Other audio features of VPR-3 include: selectable peak or VU metering response, a convenient red LED "peak" warning indicator, adjustable azimuth alignment and controlled phase response for optimum stereo separation and crosstalk. Plus unequalled low flutter specs for "transparent" audio, the console option of higher power amplifiers, full differential transformerless I/O and a convenient I/O processing port for easy interface with audio processing equipment when you need noise reduction or equalization or time compression/expansion.

Internal audio monitoring

The VPR-3 includes internal 1.5 watt per channel amplifiers and speakers when used in a tabletop or rack mount configuration. In addition there is an optional high-fidelity power amplifier and speaker system which can be incorporated into the console.

Field rate color-framer

An integral part of the video signal system is a field rate color-framer which determines the precise parking position when the tape transport is stopped. This color framer is designed to separate one field out of four in the NTSC system or one field out of eight in the PAL system. This allows the machine with its instant start capability to operate in a fully synchronous mode at all times. The "set up" menu has provisions for allowing selection of the desired field on which the machine parks.

Input signal conditioning

The video signal system features an input cable equalizer. This circuit can be adjusted to eliminate the losses in up to 1,000 feet of input cable. Also a selectable low pass filter, 6 MHz for NTSC and 7.5 MHz for PAL/SECAM, is included to reduce potential high

frequency problems. The input clamping circuit provides three switchable time constants to minimize low frequency coherent noise (hum for example) in the video signal path. These features are provided to eliminate the need for costly external signal conditioning equipment, while providing the highest quality signal to the record electronics.

Dual microprocessors

The VPR-3 control system is based on dual Z80 microprocessors. One of these processors is responsible for system control and the second controls the various input/output functions. The dual RS422 serial communication ports conform to the "draft recommended practice RP113" as published by the SMPTE. These will allow a fast, direct and plug-compatible interface with any advanced editing system based on the SMPTE serial communications concept. The best example of this type of system is ACE, the Ampex Computerized editing system.

An obvious additional use of this serial communication system will be seen in the added flexibility available in future machine control systems. A third Z80 microprocessor is used in the optional time code reader/generator/character generator system.

Multiple machine editing

"Stand up" two machine editing has always been available on SMPTE "C" videotape recorders. The VPR-3 now makes multiple machine editing from a single machine control panel a reality. The combination of the full time synchronized transport and the "SMPTE" communication buss provide the basis for this exclusive feature. The "menu" based display allows the machines to be controlled in a fast but extremely effective manner. This system which does not require time code will control additional VPR-3s from the record units panel. All that is required is a simple external audio and video switcher to route the selected signals to the recorder. The operator can select segments from any of the playback VPR-3s. The edits can be previewed, trimmed or shifted, performed and then reviewed using only the simple single function controls on the record VPR-3.

This feature allows precise multiple machine editing for many facilities which previously would have required an expensive external edit controller.

The ultimate in control simplicity

VPR-3 was designed so that it's easy to understand and simple to operate. It is the ultimate in playback machines. And the best machine you can buy for duplication. With its sophisticated built-in editing capability, VPR-3 brings you all those controls and adjustments you've come to expect in an expensive, top-of-the-line VTR—at an *economy* price that will astound you.

Some of the more exciting control features of the VPR-3 include:

Audio level control and indication

Three independent audio channels have unity detented input and output level controls (fourth channel EBU option). The meters are dual scale with true selectable peak or VU response. The separate peak indicators provide warning to the operator of improper level adjustment.

Audio line out

This control is used to control stereo playback. Ganged output level on two channels can be controlled by one

button. And a mixed output for these channels is alternately available.

Unity/variable

This is a front-panel master control that can greatly assist in a total check of the system's operation. All variables can be instantly set to the unity position, this way facilitating fast verifications of system status.

Tape/Input

This switch controls the audio/video signals when tape is not moving.

Premute/postmute

This control allows the audio monitoring system input to be taken from before or after the shuttle mode muting.

Select

Selects either video RF, video, or sync RF to be displayed on the video meter.

Audio monitoring controls

This group of two level controls and ten switches allows any channel or channels to be monitored on either the right or left monitor speaker.

Video monitoring controls

These eight switches route the selected signal to the video waveform monitor and if applicable to the picture monitor also. The unique functions include the capability of selecting the signal before or after the input processing, various "Aux" signals for diagnostic functions, and the right channel audio as selected by the audio monitor selector.

Video level control and indication

The video meter function is indicated by the illuminated labels above the meter. The demodulator out control allows the signal to the TBC to be set to an optimum level for optimum tape interchange quality.

10-Key numeric keypad

This cluster includes Clear, Duration, +, -, Copy and Field keys, which modify or route the keypad entry.

Main tape controls

Four main control buttons (READY, STOP, PLAY and RECORD) are grouped together for operator convenience.

Cue

Shuttles tape to the cue selected minus the pre-roll value.

Search

Shuttles tape to the cue selected.

Preview

Initiates multiple machine preview of selected or a manual edit.

Edit

Initiates edit mode selected or a manual edit.

Review

Initiates record machine replay of last edit performed.

P & R

Selects either (R) record machine or (P) play machine for tape movement or edit function action.

Single-knob play speed control

Tachometer-based magnetically detented single knob can be used to control variable play speeds (zero to 3X forward and zero to 1X in reverse,

job mode, and shuttle speeds of 50 times play speed forward and 50 times in reverse.) This knob is also assignable by the menu system to other recorder functions, and for convenient front panel control of secondary functions.

Remote 1

Selects parallel remote for simple remote control or the serial remote. This is automatically controlled by the multiple machine editor function. The parallel remote can also be internally disabled. This system allows easy system integration in today's facilities without sacrificing future serial communication flexibility.

Remote 2

Selects a second serial remote.

Bright, fluorescent display window

A unique, interactive window is used for a bright display of system information. This is designed to vastly improve operator communications and efficiency, and to unclutter the control panel area.

This dot matrix display (26 × 256 dots) can display alphanumeric characters or any graphic element. The upper

two-thirds of this dot matrix display is normally used to display various position information or status messages related to the operation of the VPR-3. The remaining line on the display is used as a "MENU" to identify the "SOFTKEY" directly below it.

By using this menu system, many control functions previously relegated to either card edge or other control areas can be instantly available at the operator's fingertips. The function selected can range from a simple on/off type function through the selection and display of various modes of operation and ultimately to selecting the shuttle knob for variable control functions. The menu portion of the display combined with the upper area will guide the operator through this function and also provide error messages if the VPR-3 cannot perform the desired function. A good example of an error message would be the indication that tells the operator that he has attempted to enter an edit at a location later than the edit exit point which had been selected.

As you can see, this system can be extremely flexible yet very simple for an operator to use while maintaining very efficient use of his valuable time.



The home menu

This displays tape position, including parked frame condition, editor status, and tape speed selected. A keypad entry can also be displayed prior to transfer for use. The menu line allows selection of sub menus for cueing, set-up, time code generator/reader or editing. The "editor" toggles through insert, assemble or editor off modes. "STC" selects a 100-point search-to-cue system. "VSO" selects a variable speed operations menu.

"Home"

Instant selection of the Home menu.

"More"

On menus with → in right lower corner, an additional menu with similar but lesser used functions is selected.

"Time"

Selects tape timer #1 or #2 or the time code reader for tape position indication.

"Set"

Sets the selected tape timer to zero.

"Enable"

Provides direct selection of "track record enable" menu—status is indicated on display below soft keys.



Editor menu

This indicates tape position, EN, which is the edit entry position, and the keypad entry. The menu portion selects "Clear", "Entry" and "Exit" storage locations. "Split" selects a menu for editing audio signals split from the video information. "Set-up" displays a sub menu for selecting color frame and other edit parameters.



Editor split menu

This indicates tape position—video and audio entry and exit positions and the keypad entry. The menu selects video and audio entry and exit storage locations. AUD SEL steps through all audio tracks for multiple split functions. The duration between two storage locations is displayed in keypad display when two location selectors are depressed together.



Cue menu

This indicates tape position, cue point #, cue position and keypad value if present. The menu selects scrolling, up or down through the 100 cue point, cue # entry and entry from tape position.

As you can see from the above examples of the menus, this system is very versatile and can keep the operator's attention centered on the desired working area. Additional menus include numerous set-up parameters; additional edit pre-sets; additional edit modes; the assignment of multiple machine playback functions; the variable speed memory and "LEARN" mode and access to the various diagnostic systems.



Setup Menu

This displays various functions that an operator can manipulate to set up the VPR-3 for the needs of a particular session. For example, *Video* calls up a menu for selecting video parameters, such as using the TBC-3 to preprocess the input signal. *Tape* selects a menu that stores video and audio parameters for three different brands of tape. Optimum parameters can be set automatically by the VPR-3 microprocessor, or may be set manually by responding to prompts on the menu display.



The TBC-3 Time Base Corrector. . . A perfect match for the VPR-3

The TBC-3 Time Base Corrector was designed to be the performance partner of the VPR-3. They are an unbeatable team. Feature-for-feature and performance advantage for performance advantage, you can't find a better combination than VPR-3 and the TBC-3.

The TBC-3 is the latest in the Ampex series of high performance, high reliability Time Base Correctors. And in this case, the new unit adds an even higher level of sophisticated performance when paired with the exceptional VPR-3.

A wide range of possibilities

The TBC-3 allows the widest possible range of full color, broadcast stable, slow motion, playback from -1X reverse to 3X forward. No competitive TBC/VTR combination available today can exceed this range. For time savings in edit decision making, the TBC-3 lets you see pictures at full shuttle up to 500 inches per second in both the forward and reverse direction.

To further ensure that the output picture remains disturbance free, regardless of the time base error, the TBC-3 has 20 horizontal lines of digital picture memory on the 625 line standard, and 16 horizontal lines of memory on the 525 line standard.

Options now standard features

You'll find features that were once optional on TBC-3 predecessors (like a fully color-phased 1 line dropout compensator, and the Ampex exclusive 2nd order velocity compensator) included in every TBC-3. You'll also find built-in heterodyne processing, so you can dub-up 3/4 inch VTR playbacks to "C" format.

Optional accessories

Time code reader-generator/character generator

This VPR-3 accessory is a single, plug-in PWA that generates or reads time code on audio track 3 or in the vertical interval. In addition, the character generator provides for time code display on a picture monitor. These characters are added in a multiple output internal distribution amplifier for the maximum system flexibility.



Meets broadcast standards

With the TBC-3, you'll never have to worry about meeting broadcast standards. The built-in color sync generator has been designed for SCH phase stabilized operation to eliminate cycle hopping. You'll also find both horizontal and vertical blanking widths are fully adjustable. This means picture centering can be established in the camera and maintained through the VTR to the TBC output.

Transparent data conversion

The TBC-3 gives you the most transparent A/D and D/A conversion available. VLSI technology has been incorporated in the A/D converter where single chip construction achieves exceptional freedom from drift, as well as unexcelled transparency in signal processing.

High-powered audio system/speakers

A 15-watt per channel amplifier and high-fidelity speakers are available for use in the console configuration of the VPR-3.

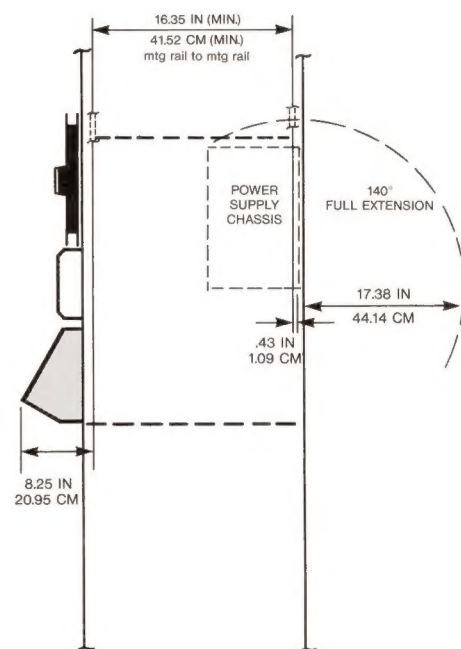
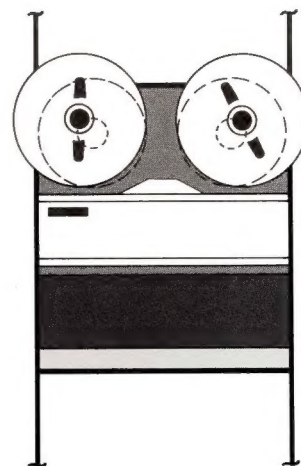
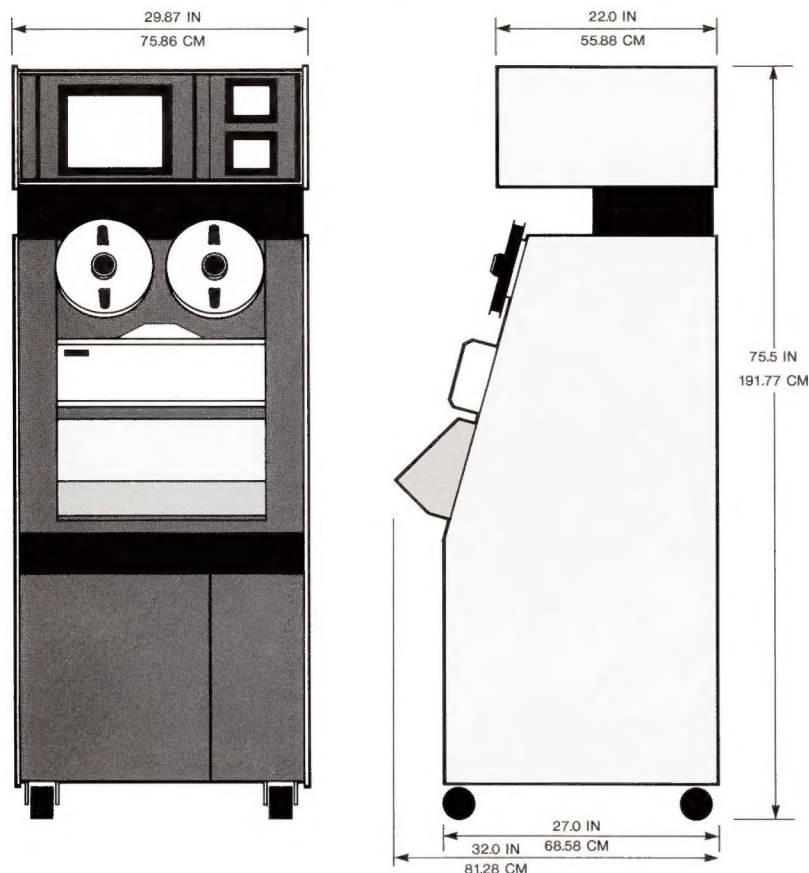
Digital line-by-line autochroma

Line-by-line digital autochroma can be supplied for the VPR-3 for better multiple generation tape duplication. This automatically corrects any minute chroma errors present within a field, on a line-by-line basis.

SMC-100 Slow-motion controller

This is a versatile remote speed controller for such operations as normal speed playback, variable forward slow motion, freeze frame, variable speed shuttling, and automatic cue point. A serial interface adaptor allows simple connection to one of the RS-422 ports.

VPR-3 Configuration flexibility



RACK MOUNT
19 Inch rack compatible

CONSOLE

The optional console has provisions for mounting the VPR-3, TBC-3, a picture monitor, waveform and vector monitors, and the high power audio system.

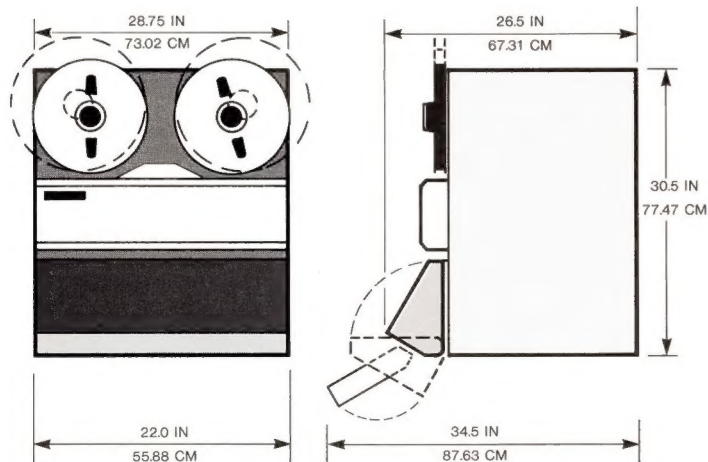
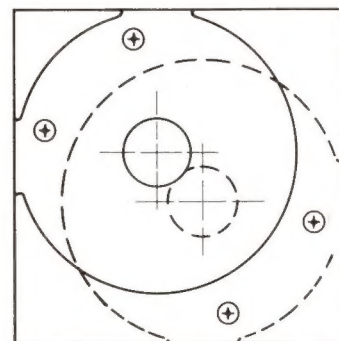


TABLE TOP

Selectable Reel Size

The reel motors have a unique mounting base which allows the motor position to be changed. In the outer position the three hour, 14 inch reels are accommodated. The inner position which permits mounting the VPR-3 in a 19" rack has a 2 hour or 11 3/4 inch maximum reel size. A simple modification of a standard 19" rack rack will permit the outer or 3 hour position to be used, if desired.



VPR-3 Specifications

AmpeX reserves the right to make product and specification changes at any time without notice.

VIDEO AND SYNC		NTSC/PAL-M 525/60	PAL/SECAM 625/50
Bandwidth		Flat to 4.2 MHz \pm 0.5 dB -3 dB at 5.0 MHz	Flat to 5.0 MHz \pm 0.5 dB -3 dB at 6.0 MHz
S/N (Rhode & Schwarz unweighted with bandpass filter) using TBC-3		-46 dB peak-to-peak video to RMS noise on interchange basis	-43 dB peak-to-peak video to RMS noise on interchange basis
LF Linearity		2% blanking to white (maximum)	2% blanking to white (maximum)
Differential Gain		4% blanking to white (maximum)	4% blanking to white (maximum)
Differential Phase (40 IEEE units of subcarrier through TBC-3)		4° at 3.58 MHz off-tape (max)	4° at 4.43 MHz off-tape (max)
Chrominance/Luminance Delay		20 n sec (maximum)	25 n sec (maximum)
2T sin ² Pulse & Bar		1% K-factor maximum	1% K-factor maximum
Moire		-40 dB color bars 75% amplitude 3.58 MHz subcarrier	-36 dB color bars 75% amplitude 4.43 MHz subcarrier
AUDIO (Channels 1, 2, & 3)			
Frequency Response (400 Hz Ref) 100 nWb/m reference level		\pm 1 dB 200 Hz to 12 KHz \pm 2 dB 50 Hz to 18 KHz	
S/N (with respect to 8 dB above reference level) 20 Hz to 20 KHz		-56 dB Audio 1 and 2 -54 dB Audio 3 (Note 1)	+56 dB Audio 1 and 2 -54 dB Audio 3 (Note 1) + Audio 4
Distortion (measured at 1 KHz) (3HD) @ 100 nWb/m reference level (+8 dBm) @ 251 nWb/m peak level (+16 dBm) With predistortion at 200 nWb/m (+14 dBm)		1% maximum 3% maximum 1% maximum	
Depth of erasure on its own recording		-70 dB	
Wow & Flutter		.07% NAB unweighted (flutter tape)	.07% DIN weighted (R/P)
Playback Crosstalk (Audio 1 & 2) 1 KHz referenced to +8 dBm or 100 nWb/m		-60 dB maximum	
SIGNAL INPUTS			
Video Input (75 ohm) BNC		0.5 to 2 volts peak-to-peak	
Ref Video (75 ohm) BNC			
Comp sync		0.7 to 4 volts	
Comp video		0.5 to 2 volts	
Audio line inputs		-24 to +24 dBm, +8 dBm nominal	
Impedance, Transformerless, True Differential		balanced; 65 K ohm resistive	
SIGNAL OUTPUTS			
Video Output (75 ohm) BNC		1.0 Volt peak-to-peak	
Audio Line Outputs, Transformerless, True Differential		+8 dBm nominal; balanced +24 dBm maximum (Note 3)	
Impedance		less than 20 ohms	
Headphone Audio Monitor		0 dBm to drive 600 ohms	
Audio Meter Circuits Switchable VU or PPM			
GENERAL			
Record Time		190 minutes nominal; 9200 feet of tape on 14" reel	
Shuttle Time		less than 72 seconds for 60 minute tape, 3.6 minutes for a 3 hour tape	
Tape-Timer Accuracy (Control track updated)		\pm 0.1 Field with continuous control track	
Tape Speed		244 \pm 0.5 mm/sec 9.606 \pm 0.02 in/sec	239.8 \pm 0.5 mm/sec 9.44 \pm 0.02 in/sec
Video Writing Speed		1009 in/sec nominal	842 in/sec nominal
FM Carrier Frequencies		7.9 MHz blanking 10.0 MHz peak white	7.68 MHz blanking 8.9 MHz peak white
Audio Equalization		15 microseconds 3180 microseconds	15 microseconds
Lock-up time from Ready Mode		20 milliseconds	Lock-up time from Scanner Off 3 seconds
PHYSICAL DIMENSIONS			
	Rack Mount	Table Top	Studio Console w/Monitor
Height	29.75 in. 75.56 cm	30.5 in. 77.47 cm	Bridge & TBC 75.5 in. 191.77 cm
Width	19.0 in. (Note #4) 48.26 cm	22.0 in. 55.88 cm	29.875 in. 75.86 cm
Depth	25.75 in. 65.4 cm	26.5 in. 67.31 cm	32.00 in. (Note 5) 81.28 cm
Weight	270 lb 122.47 kg	275 lb 124.74 kg	650 lb 294.84 kg
TEMPERATURE & HUMIDITY			
Temperature		0-45°C	
Humidity		10%-90% RH (non-condensing)	
POWER INPUT			
Power Line Frequency		50 & 60 Hz single phase	
Input voltages		95/105/115/125/135 Volts AC \pm 5% 190/210/230/250/270 Volts AC \pm 5%	
Input Current (Table Top)		115 vac Nominal 3.5 Amps* 230 vac Nominal 1.8 Amps† 115 vac Nominal 7.0 Amps* 230 vac Nominal 3.5 Amps†	* Additional 12 Amp, 1 sec shuttle start surge † Additional 6 Amp, 1 sec shuttle start surge
(Lowboy console TBC and color monitor bridge)			

Note 1: Audio 3 channel has wide-band capability for Time Code (S/N WB-30 dB)
Note 2: All specifications are based on AmpeX 196 Tape or equivalent.

Note 3: Can be readjusted downward by 12 dBm.
Note 4: +2" Front Mounting Trim & Control Panel
Note 5: Removable Control Panel reduces depth to 27"

AMPEX AmpeX Corporation, Audio-Video Systems Division

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VPR-3...It's the ultimate in accessibility and maintainability

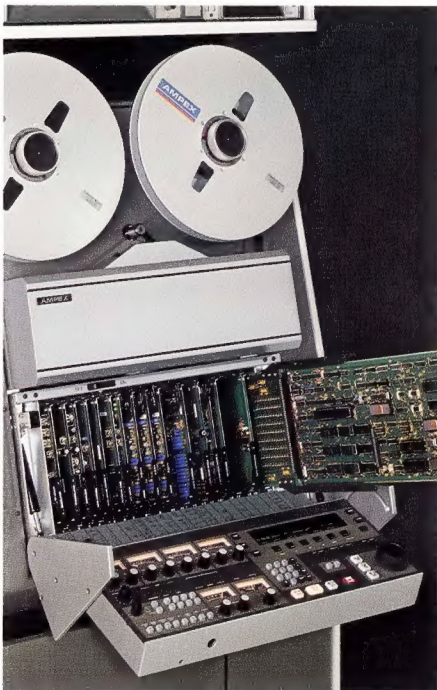
The VPR-3 is designed to be reliable but also easy to maintain. It features many Ampex exclusive features that operators and technicians both can appreciate.

A tough, well-built chassis

The VPR-3 begins with a rugged aluminum alloy die casting that mounts to the chassis side panels for exceptional structural support and rigidity. Torsional deflections are virtually eliminated. All mechanical components are discrete sub-assemblies that have been pre-tested and that are individually adjustable. Each is precisely indexed to the front surface of the base casting. VPR-3 has been designed for the ultimate in reliability in its reel motors, gentle air-guided tape transport, video scanner heads, audio heads, and capstan assembly.

Easy accessibility

Anyone can get at the mechanical workings of the VPR-3 without hindering controls. You have clean and simple access to printed circuit cards, while the control panel still operates.

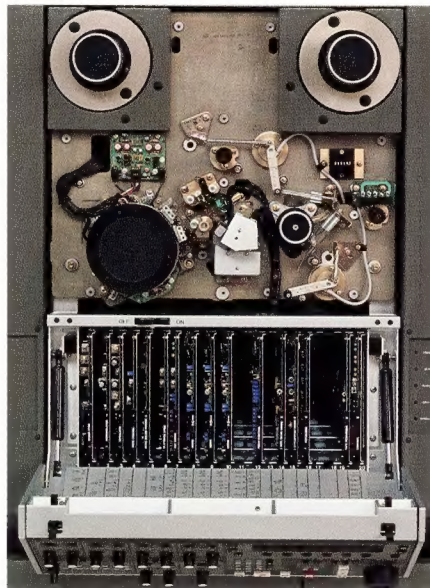


The majority of the system's printed circuit boards are right behind the control panel. This panel swings down for simple checks and then is quickly inverted if system operation with a circuit board extended is required. This system also places the circuit board in an optimum position for servicing without stooping or bending.

Rear-side maintenance ease

All major servo drive and power supply components inside VPR-3 are located on convenient plug-in assemblies. These sub-assemblies can be easily extended for problem analysis, and replacement components installed with minimum downtime. Repairs can be accomplished faster, with less component damage or costly delays.

The capability to hinge down the servo and power supply card bay permits any serviceman to observe or maintain all internal harnesses, the rear of the tape transport and the internal air/vacuum system without hindrance.



Far simpler electronics packaging

The VPR-3 is highly serviceable. There is an obvious absence of highly complex electronic harnesses. There is simple cabling throughout. The mother board for the main card bay also contains the system input/output connectors. The control panel connects to the system with flat ribbon cable with "computer type" locking connectors.

Advanced self diagnostics

VPR-3 features "real-world" diagnostics. It really can tell you what's wrong immediately. The system's central "UNITY" switch permits the operator to put the VPR-3 to a known reference and check to see if the problem is human or electronic—and UNITY helps isolate what and where the problem is. UNITY is a powerful testing tool, as it forces all video, TBC and audio variables to adhere to an established standard.

The basic diagnostic functions include the monitoring and display of all critical voltages as measured by the internal digital voltmeter circuitry. Also many error voltages are monitored and if they exceed their limits a warning is provided in the display. A prime example of this method is the monitoring of capstan motor current. This vital parameter directly reflects the effort required to move the tape. If this exceeds its preset limit a warning will be visible in the display.



Additional advanced diagnostics will exercise the buss systems for the various microprocessors, and display any faults present. The SMPTE serial ports, I/O functions can also be exercised and the results displayed independent from the system. This allows fast isolation of communication problems in a computer based editing system. An optional probe based diagnostic system allows digital circuit faults to be traced to the component level. The engineer can be guided by messages in the display and various modes will be selected by the associated soft keys.